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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/914,198 /	11/13/2001	Tsuyoshi Sano	U013609-7	9580

140 7590 09/15/2003

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EXAMINER
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SHOSHO, CALLIE E

ART UNIT	PAPER NUMBER
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1714

DATE MAILED: 09/15/2003

11

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicati n No.

09/914,198

Applicant(s)

SANO ET AL.

Examin r

Callie E. Shosho

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-- The MAILING DATE of this communication appears on the cov r sh et with the corr spondenc address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 June 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 and 7-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5 and 8-25 is/are rejected.
- 7) ☐ Claim(s) 3 and 7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

1. All outstanding rejections are overcome by applicants' amendment filed 6/9/03.

The following rejection is non-final in light of the new grounds of rejection as set forth in paragraph 4 below, namely, the rejection of claim 17 by Takemoto (U.S. 6,075,069) in view of Sano et al. (U.S. 5,503,664).

**Claim Objections**

2. Claim 7 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 7, which depends on claim 5, discloses that the fine particle polymer weight proportion  $E_1$  in the dark ink is less than the fine particle polymer weight proportion  $E_2$  in the light ink while claim 5 discloses the opposite, namely that  $E_1 > E_2$ . Thus, claim 7 fails to further limit the claim on which it depends because claim 7 requires a completely different and opposite limitation regarding the amount of fine polymer particle than claim 5.

**Claim Rejections - 35 USC § 103**

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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4. Claims 1-2, 4, and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takemoto (U.S. 6,075,069) in view of Kubota et al. (U.S. 5,846,306).

Takemoto et al. disclose ink set comprising inks used in ink jet printing to make a recording wherein the ink set comprises yellow, light magenta, magenta, light cyan, cyan, and black inks (col.1, lines 6-8, cols. 12-13, and Table 3).

From cols.12-13 and Table 3, it can be seen that the ratio of dispersant to pigment for magenta ink 3 is 0.33 (1/3) while the ratio of dispersant to pigment for the light magenta ink 1 is 0.6 (0.3/0.5). Additionally, the ratio of the ratio of dispersant to pigment for the cyan ink 3 is 0.5 (1/2) while the ratio of dispersant to pigment for the light cyan ink 1 is 0.67 (0.2/0.3). Thus, it can be seen that the ratio of dispersant to pigment for the dark ink is lower than the same ratio for the light ink and that the amount of dispersant in the dark ink is greater than the amount of dispersant in the light ink.

The difference between Takemoto and the present claimed invention is the requirement in the claims of resin emulsion.

Kubota et al., which is drawn to ink jet ink set, disclose the use of 0.1-40% resin emulsion wherein the resin component of the emulsion has particle size of 5-100 nm. The motivation for using resin emulsion is to inhibit penetration of the colorant into the recording medium, accelerate fixation of the ink on the medium, and to improve rubbing resistance (col.6, line 20-col.7, line 8).

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use resin emulsion in the inks of the ink set of Takemoto in order to produce inks which

adhere quickly to the recording medium and possess excellent rub resistance, and thereby arrive at the claimed invention.

5. Claims 5 and 8-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takemoto (U.S. 6,075,069) in view of Sano et al. (U.S. 5,503,664).

Takemoto disclose ink set comprising inks used in ink jet printing to make a recording wherein the ink set comprises yellow, light magenta, magenta, light cyan, cyan, and black inks. The inks are made from pigments which include Pigment Red 122, Pigment Blue 15:3, Pigment Yellow 74, and carbon black (col.1, lines 6-8, cols. 12-13, and Table 3).

From cols.12-13 and Table 3, it can be seen that the ratio of dispersant to pigment for magenta ink 3 is 0.33 (1/3) while the ratio of dispersant to pigment for the light magenta ink 1 is 0.6 (0.3/0.5). Additionally, the ratio of the ratio of dispersant to pigment for the cyan ink 3 is 0.5 (1/2) while the ratio of dispersant to pigment for the light cyan ink 1 is 0.67 (0.2/0.3). Thus, it can be seen that the ratio of dispersant to pigment for the dark ink is lower than the same ratio for the light ink and that the amount of dispersant in the dark ink is greater than the amount of dispersant in the light ink.

The difference between Takemoto and the present claimed invention is the requirement in the claims of the fine polymer particle.

Takemoto disclose ink set comprising light ink and dark ink wherein each ink comprises a dispersant.

Sano et al., which is drawn to ink jet inks, disclose that a resin emulsion acts as a dispersant and that the resin emulsion can be used instead of a dispersant. The resin emulsion

has, for instance, minimum film-forming temperature of 5 °C and is used in the amount of 0.1-40%. It is further disclosed that the resin component of the resin emulsion has particle size of 5-100 nm<sup>1</sup> (col.4, lines 6-11 and 15-18, col.5, lines 12-14, col.6, lines 31-33, and col.7, line 31). Although there is no explicit disclosure of the glass transition temperature of the resin emulsion, given that Sano et al. disclose the use of resin emulsion identical to those used in the present invention, it is clear that such resin emulsion would intrinsically possess the same glass transition temperature as presently claimed.

In light of the disclosure of Sano et al., it therefore would have been obvious to one of ordinary skill in the art to use fine polymer particle, i.e. resin emulsion, in place of the dispersant of Takemoto, and thereby arrive at the claimed invention.

6. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takemoto in view of Sano et al. as applied to claims 5 and 8-19 above, and further in view of Ono et al. (U.S. 6,299,675).

The difference between Takemoto in view of Sano et al. and the present claimed invention is the requirement in the claims of the viscosity and the surface tension of the ink.

Ono et al., which is drawn ink jet ink set, disclose the use of ink which have surface tension of 30-68 dyne/cm and viscosity less than 15 cP in order to produce inks with good waterfastness (col.15, lines 28-35).

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<sup>1</sup> It is noted that col.4, lines 15-18 of Sano et al. disclose that the resin component has particle size of 5-100 microns. However, it is well known that resin emulsions of the type disclosed by Sano et al. (Microgel E-1002, Voncoat 5454) have particle size in the nanometer range and thus, it is believed that the particle size disclosed by Sano et al. is in error. Evidence to support this position is found in col.6, lines 20-26 and 53-63 of Kubota et al. (U.S.

In light of the above, it therefore would have been obvious to one of ordinary skill in the art to use inks with such surface tension and viscosity in the ink set of Takemoto in order to produce inks with excellent waterfastness, and thereby arrive at the claimed invention.

7. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takemoto in view of Sano et al. as applied to claims 5 and 8-19 above, and further in view of Ohtsuka et al. (U.S. 6,260,938).

The difference between Takemoto in view of Sano et al. and the present claimed invention is the requirement in the claims of printing ink set on special paper.

Ohtsuka et al., which is drawn to ink jet ink set, disclose that when using thin or light inks, a large amount of ink must be ejected onto the printing medium in order to produce an image with suitable color density. Ohtsuka et al. further disclose that plain paper has low ink absorbing capacity while special paper has high ink absorbing capacity (col.2, lines 32-52, col.3, lines 21-31, and col.12, lines 42-52).

Thus, given that large amounts of ink must be used with light inks and that only special paper can absorb such inks, it therefore would have been obvious to one of ordinary skill in the art to use special paper when printing the ink set of Takemoto, which contains light ink, so that the paper is able to effectively absorb the ink, and thereby arrive at the claimed invention.

**Response to Arguments**

8. Applicants' arguments regarding Adkins et al. (U.S. 6,379,444), EP 879857, and Miyabayashi et al. (U.S. 6,271,285) have been considered but they are moot in view of the discontinuation of the use of these references against the present claims.

9. Applicants' arguments filed 6/9/03 have been fully considered but, with the exception of arguments relating to Adkins et al., EP 879857, and Miyabayashi et al., they are not persuasive.

Specifically, applicants argue that under the provisions of 35 USC 103(c) and in view of the statement of common ownership set forth on page 6 of the amendment, Takemoto is disqualified as prior art.

However, as set forth in MPEP 706.02(l)(1) and MPEP 706.02(l)(3), a commonly owned reference is only disqualified if the reference was used in obviousness rejection under 35 USC 103 and only qualifies as prior art under 35 USC 102 (e), (f), or (g) not 35 USC 102(a) or (b).

It is noted that applicant has provided evidence in this file showing that the invention was owned by, or subject to an obligation of assignment to, the same entity as the Takemoto reference at the time this invention was made. Accordingly, Takemoto is disqualified as prior art through 35 U.S.C. 102(e), (f) or (g) in any rejection under 35 U.S.C. 103(a) in this application. However, Takemoto additionally qualifies as prior art under another subsection of 35 U.S.C. 102, namely, 35 USC 102(a), and accordingly is not disqualified as prior art under 35 U.S.C. 103(a).



Takemoto issued as a patent 6/13/00 which is before the effective filing date of the present invention which is a 371 of PCT/JP00/09354 filed 12/27/00. Thus, Takemoto qualifies as prior art under 35 USC 102(a).

In light of the above, Takemoto remains a relevant reference against the present claims.

**Allowable Subject Matter**

10. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 3 would be allowable if re-written in independent form as described above given that Takemoto (U.S. 6,075,069) disclose that the amount of resin in the dark ink is greater than the amount of resin in the light ink. There is no disclosure in Takemoto that the amount of resin in the dark ink is less than the amount of resin in the light ink as required in present claim 3.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Callie E. Shosho  
Primary Examiner  
Art Unit 1714

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9/6/03